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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/970,971	10/04/2001	Muthiah Manoharan	ISIS-4789	3195
32650	7590	09/14/2006		
WOODCOCK WASHBURN LLP ONE LIBERTY PLACE - 46TH FLOOR PHILADELPHIA, PA 19103			EXAMINER OWENS JR, HOWARD V	
			ART UNIT	PAPER NUMBER
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Serial No. : 09/970,971  
Applicant : Manoharan et al.  
Filing Date : October 4, 2001  
Date Mailed : September 13, 2006

## ACKNOWLEDGEMENT OF REQUEST

### *Notice of Allowance/Allowability Mailed*

The request for a corrected notice of allowance/allowability, dated June 24, 2005, has been received by the U.S. Patent and Trademark Office. A corrected notice of allowance/allowability will not be mailed, but the Office has verified the following information, and made any necessary corrections to Office computer data:

- The allowed claims are 1-13, 18 and 21-32

A. Marty Willis  
For the Office of Patent Publication



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The request for a copy of the initialed PTO 1449, dated June 24, 2005, has been received by the U.S. Patent and Trademark Office.

- Requested copy attached

A handwritten signature in cursive script that reads "A. Marty Willis".

A. Marty Willis  
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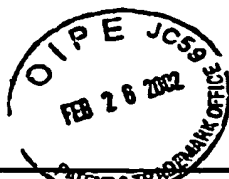
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<b>Form PTO-1449 Modified</b>		<b>Docket No.</b> ISIS-4789	<b>Serial No.</b> 09/970,971
<b>List of Patent and Publications Cited by Applicant (Use several sheets if necessary)</b>  <b>U.S. Department of Commerce Patent and Trademark Office</b>		<b>Applicant</b> Manoharan et al.	
		<b>Filing Date</b> October 4, 2001	<b>Group</b> Not yet assigned
<b>OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)</b>			
OK	AA	Abe, A. et al., "Conformational Energies and the Random-Coil Dimensions and Dipole Moments of Polyoxides $\text{CH}_3\text{O}[(\text{CH}_2)\text{yO}]_x\text{CH}_3$ ," <i>J. Am. Chem. Soc.</i> , 1976, 6468-6476	
	AB	Albert, P.R. et al., "Antisense knockouts: molecular scalpels for the dissection of signal transduction", <i>Trends Pharmacol. Sci.</i> , 1994, 15, 250-254	
	AC	Altmann, K. et al., "Second Generation Antisense Oligonucleotides-Inhibition of Pkc-1 And c-RAF Kinase Expression by Chimeric Oligonucleotides Incorporating 6-Substituted Carbocyclic Nucleosides and 2'-O-Ethylene Glycol Substituted Ribonucleosides," <i>Nucleosides &amp; Nucleotides</i> , 1997, 16(7-9), 917-926	
	AD	Altmann, K. et al., "Second-Generation Antisense Oligonucleotides: Structure-Activity Relationships and the Design of Improved Signal-Transduction Inhibitors", <i>Biochem. Soc. Trans.</i> , 1996, 24, 630-637	
	AE	Altmann, K. et al., "Second Generation of Antisense Oligonucleotides: From Nuclease Resistance to Biological Efficacy in Animals," <i>Chimia</i> , 1996, 50, 168-176	
	AF	Baker, B.F. et al., "2'-O-(2-Methoxy)ethyl-modified Anti-intercellular Adhesion Molecule 1 (ICAM-1) Oligonucleotides Selectively Increase the ICAM-1 Translation Initiation Complex in Human Umbilical Vein Endothelial Cells", <i>J. Biol. Chem.</i> , 1997, 272, 11994-12000	
	AG	Beal, P. A. et al., "Second Structural Motif for Recognition of DNA by Oligonucleotide-Directed Triple-Helix Formation," <i>Science</i> , 1991, 251, 1360-1363	
	AH	Beaucage, S.L. et al., "Advances in the Synthesis of Oligonucleotides by the Phosphoramidite Approach", <i>Tetrahedron</i> , 1992, 48, 2223-2311	
	AI	Berger et al., "Crystal structures of B-DNA with incorporated 2'-deoxy-2'-fluoro-arabino-furanosyl thymine: implications of conformational preorganization for duplex stability," <i>Nucl. Acids Res.</i> , 1998, 26(10), 2473-2480	
OK	AJ	Berkow et al. (eds.), <i>The Merck Manual of Diagnosis and Therapy</i> , 15th Edition, Rahway, N.J., 1987, 2263-2277	
<b>EXAMINER</b> G. Karim		<b>DATE CONSIDERED</b> 5/10/06	

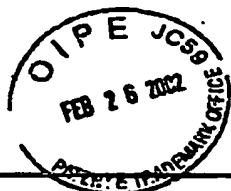


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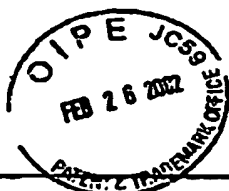
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<b>GLK</b>	<b>AK</b>	Berkow et al. (eds.), <i>The Merck Manual of Diagnosis and Therapy</i> , 15th Edition, Rahway, N.J., 1987, 2283-2287	
	<b>AL</b>	Berkow et al. (eds.), <i>The Merck Manual of Diagnosis and Therapy</i> , 15th Edition, Rahway, N.J., 1987, 2286-2293	
	<b>AM</b>	Berkow et al. (eds.), <i>The Merck Manual of Diagnosis and Therapy</i> , 15 <sup>th</sup> Edition, Rahway, NJ, 1987, 2301-2310	
	<b>AN</b>	Bernhard, E.J. et al., "Direct Evidence Linking Expression of Matrix Metalloproteinase 9 (92-kDa gelatinase/collagenase) to the metastatic phenotype in transformed rat embryo cells," <i>Proc. Natl. Acad. Sci. USA</i> , 1994, 91, 4293-4297	
	<b>AO</b>	Birkedal-Hansen, H. et al., "Proteolytic Remodeling of Extracellular Matrix," <i>Curr. Op. Cell Biol.</i> , 1995, 7, 728-735	
	<b>AP</b>	Bock, L. C. et al., "Selection of Single-Stranded DNA Molecules that Bind and Inhibit Human Thrombin," <i>Nature</i> , 1992, 355, 564-566	
	<b>AQ</b>	Böggemeyer, E. et al., "Borrelia Burgdorferi Upregulates the Adhesion Molecules E-selectin, P-selectin, ICAM-1 and VCAM-1 on Mouse Endothelioma Cells in vitro," <i>Cell Adhes. Commun.</i> , 1994, 2, 145-157	
	<b>AR</b>	Conte, M. R. "Confirmational Properties and Thermodynamics of the RNA Duplex r(CGCAAUUUGCG)2: Comparison with the DNA Analogue d(CGCAAATTTGCG)2," <i>Nucl. Acids Res.</i> , 1997, 25(13), 2627-2634	
	<b>AS</b>	Cornell, W. D. et al., "A Second Generation Force Field for the Simulation of Proteins, Nucleic Acids, and Organic Molecules," <i>J. Am. Chem. Soc.</i> , 1995, 117, 5179-5197	
<b>GLK</b>	<b>AT</b>	Cory, A.H. et al., "2'-Deoxy-2'-Methylene Derivatives of Adenosine, Guanosine, Tubercidin, Cytidine and Uridine as Inhibitors of L1210 Cell Growth in Culture," <i>Biochem. Pharmacol.</i> , 1994, 47(2), 365-371	
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Elc	AU	Cowser, L. M. et al., "In vitro and In Vivo Activity of Antisense Inhibitors of ras: Potential for Clinical Development," <i>Anti-Cancer Drug Design</i> , 1997, 12, 359-371	
	AV	Crooke, S.T. et al., "Pharmacokinetic Properties of Several Novel Oligonucleotide Analogs in mice", <i>J. Pharmacol. Exp. Therapeutics</i> , 1996, 277, 923-937	
	AW	Crooke, S.T. et al., "Kinetic characteristics of <i>Escherichia coli</i> RNase H1: cleavage of various antisense oligonucleotide-RNA duplexes", <i>Biochem. J.</i> , 1995, 312, 599-608	
	AX	Crooke, S. T. , "Progress in Antisense Therapeutics," <i>Medicinal Research Reviews</i> , 1996, 16(4), 319-344	
	AY	Damha, M.J. et al., "An improved procedure for derivatization of controlled-pore glass beads for solid-phase oligonucleotide synthesis", <i>Nucl. Acids Res.</i> , 1990, 18, 3813-3821	
	AZ	Damha et al., "Hybrids of RNA and Arabinonucleic Acids (ANA and 2'-ANA) Are Substrates of Ribonuclease H," <i>J. Am. Chem. Soc.</i> , 1998, 120, 12976-12977	
	BA	De Mesmaeker, A. et al., "Antisense Oligonucleotides", <i>Acc. Chem. Res.</i> , 1995, 28, 366-374	
	BB	Dean, N.M. et al., "Inhibition of protein kinase C- $\alpha$ expression in mice after systemic administration of phosphorothioate antisense-oligodeoxynucleotides", <i>Proc. Natl. Acad. Sci.</i> , 1994, 91, 11762-11766	
	BC	DeLisser, H. M. et al., "Molecular and Functional Aspects of PECAM-1/CD31," <i>Immunol. Today</i> , 1994, 15(10), 490-494	
	BD	Dimock, S. et al., "An Efficient Multigram Synthesis of Monomers for the Preparation of Novel Oligonucleotides Containing Isosteric Non-Phosphorous Backbones," <i>Nucleosides &amp; Nucleotides</i> , 1997, 16(7-9), 1629-1632	
	BE	Downward, J. et al., "The ras Superfamily of Small GTP-binding proteins," <i>TIBS</i> , 15, 1990, 469-472	
	BF	Egli, M. et al., "RNA Hydration: A Detailed Look," <i>Biochemistry</i> , 1996, 35, 8489-8494	
GL	BG	Englisch, U. et al., "Chemically Modified Oligonucleotides as Probes and Inhibitors", <i>Angew. Chem. Int. Ed. Eng.</i> , 1991, 30, 613-629	
<b>EXAMINER</b> G. Krishnan		<b>DATE CONSIDERED</b> 5/10/00	

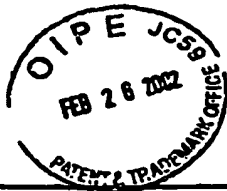


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66	BH	Fedoroff, O. Y. et al., "Structure of a DNA: RNA Hybrid Duplex Why Rnase H Does Not Cleave Pure RNA," <i>J. Mol. Biol.</i> , 1993, 233, 509-523	
	BI	Flanagan et al., "Cellular penetration and antisense activity by a phenoxazine-substituted heptanucleotide," <i>Nat. Biotechnol.</i> , 1999, 17(1), 48-52	
	BJ	Fraser, A. et al., "Synthesis and Conformational Properties of 2'-Deoxy-2'-methylthio-pyrimidine and -purine Nucleosides: Potential Antisense Applications," <i>J. Heterocycl. Chem.</i> , 1993, 30, 1277-1287	
	BK	Freier, S.M. et al., "The ups and downs of nucleic acid duplex stability: structure-stability studies on chemically-modified DNA:RNA duplexes", <i>Nucl. Acids Res.</i> , 1997, 25, 4429-4443	
	BL	Gaffney, B.L. et al., "A New Strategy for the Protection of Deoxyguanosine During Oligonucleotide Synthesis", <i>Tetrahedron Letts.</i> , 1982, 23, 2257-2260	
	BM	Gao, Y-G. et al., "Molecular Structure of a DNA Decamer Containing an Anticancer Nucleoside Arabinosylcytosine: Conformational Perturbation by Arabinosylcytosine in B-DNA," <i>Biochem.</i> , 1991, 30(41), 9922-9931	
	BN	Gmeiner, W.H. et al., "Effect of Cytarabine on the NMR Structure of a Model Okazaki Fragment from the SV40 Genome," <i>Biochem.</i> , 1999, 38, 1166-1175	
	BO	Gonzalez, C. et al., "Structure and Dynamics of a DNA-RNA Hybrid Duplex with a Chiral Phosphorothioate Moiety: NMR and Molecular Dynamics with Conventional and Time-Averaged Restraints," <i>Biochemistry</i> , 1995, 34, 4969-4982	
	BP	Gotfredsen, C.H. et al., "Novel Oligodeoxynucleotide Analogues Containing A 2'-O-Methylarabinonucleoside," <i>Tetra. Lett.</i> , 1994, 35(37), 6941-6944	
	BQ	Gotfredsen, C.H. et al., "Synthesis and Properties of $\alpha$ - and $\beta$ -Oligodeoxynucleotides Containing $\alpha$ - and $\beta$ -1-(2-O-Methy-D-arabino-furanosyl)thymine," <i>Bioorg. Med. Chem.</i> , 1996, 4(8), 1217-1225	
66	BR	Gotfredsen, C.H. et al., "Structure of a DNA Duplex Containing a Single 2'-O-Methyl- $\beta$ -D-araT: Combined Use of NMR, Restrained Molecular Dynamics, and Full Relaxation Matrix Refinement," <i>Bioconjugate Chem.</i> , 1996, 7, 680-688	
<b>EXAMINER</b>		DATE CONSIDERED 5/6/00	



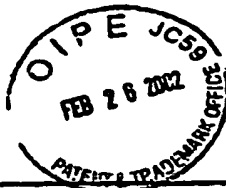
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<i>Gl</i>	<b>BS</b>	Griffin, L. C. et al., "In Vivo Anticoagulant Properties of a Novel Nucleotide-Based Thrombin Inhibitor and Demonstration of Regional Anticoagulation in Extracorporeal Circuits," <i>Blood</i> , 1993, 81, 3271-3276	
	<b>BT</b>	Griffiths, C.E.M. et al., "Keratinocyte Intercellular Adhesion Molecule-1 (ICAM-1) Expression Precedes Dermal T Lymphocyte Infiltration in Allergic Contact Dermatitis ( <i>Rhus dermatitis</i> )", <i>Am. J. Pathology.</i> , 1989, 135, 1045-1053	
	<b>BU</b>	Gum, R. et al., "Stimulation of 92-kDa Gelatinase B Promoter Activity by ras Is Mitogen-activated Protein Kinase Kinase 1-independent and Requires Multiple Transcription Factor Binding Sites Including Closely Spaced PEA3/ets and AP-1 Sequences," <i>J. Biol. Chem.</i> , 1996, 271(18), 10672-10680	
	<b>BV</b>	Guzaev A. et al., "Synthesis of C-Radiolabeled Oligonucleotides with a Novel Phosphoramidite Reagent," <i>Bioorg. &amp; Med. Chem. Lett.</i> , 1998, 8, 1123-1126	
	<b>BW</b>	Hakugawa, J. et al., "The Inhibitory Effect of Anti-Adhesion Molecule Antibodies on Eosinophil Infiltration in Cutaneous Late Phase Response in Balb/c Mice Sensitized with Ovalbumin (OVA)," <i>J. Dermatol.</i> , 1997, 24, 73-79	
	<b>BX</b>	Hansske, F. et al., "2' and 3'-Ketonucleosides and their <i>Arabino</i> and <i>Xylo</i> Reduction Products", <i>Tetrahedron</i> , 1984, 40, 125-135	
	<b>BY</b>	Hansske et al., "Nucleic Acid Related Compounds. 43. A Convenient Procedure for the Synthesis of 2' and 3'-Ketonucleosides," <i>Tetra. Lett.</i> , 1983, 24(15), 1589-1592	
	<b>BZ</b>	Hegemann, L. et al., "Biochemical Pharmacology of Protein Kinase C and its Relevance for Dermatology", <i>Pharmacology of the Skin</i> , 1992, Ch. 22, CRC Press, Boca Raton, 357-368	
	<b>CA</b>	Himelstein, B. P. et al., "Metalloproteinases in Tumor Progression: The Contribution of MMP-9," <i>Invasion &amp; Metastasis</i> , 1994-95, 14, 246-258	
	<b>CB</b>	Ho, V.C. et al., "Treatment of severe lichen planus with cyclosporine", <i>J. Am. Acad. Dermatol.</i> , 1990, 22, 64-68	
<i>Gl</i>	<b>CC</b>	Horton, N. C. et al., "The Structure of an RNA/DNA Hybrid: A Substrate of the Ribonuclease Activity of HIV-1 Reverse Transcriptase," <i>J. Mol. Biol.</i> , 1996, 264, 521-533	
<b>EXAMINER</b> <i>G. Kriz</i>		<b>DATE CONSIDERED</b> <i>5/10/06</i>	





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<b>Gk</b>	<b>CD</b>	Hua, J. et al., "Inhibition of Matrix Metalloproteinase 9 Expression by a Ribozyme Blocks Metastasis in a Rat Sarcoma Model System," <i>Cancer Res.</i> , 1996, 56, 5279-5284	
	<b>CE</b>	Hurtenbach, U. et al., "Prednisolone Reduces Experimental Arthritis and Inflammatory Tissue Destruction in Scid Mice Infected with <i>Borrelia Burgdorferi</i> ," <i>Int. J. Immunopharmac.</i> , 1996, 18, 281-288	
	<b>CF</b>	Iribarren, A.M. et al., "Resistance to Degradation by Nucleases of (2'S)-2'-Deoxy-2'-C-methyloligonucleotides, Novel Potential Antisense Probes," <i>Antisense Res. Dev.</i> , 1994, 4(2), 95-98	
	<b>CG</b>	Iyer, R.P. et al., "The Automated Synthesis of Sulfur-Containing Oligodeoxyribonucleotides Using 3H-1,2-Benzodithiol-3-one 1,1-Dioxide as a Sulfur-Transfer Reagent", <i>J. Org. Chem.</i> , 1990, 55, 4693-4699	
	<b>CH</b>	Jaishree, T.N. et al., "Structural Influence of RNA Incorporation in DNA: Quantitative Nuclear Magnetic Resonance Refinement of d(CG)r(CG)d(CG) and d(CG)r(C)d(TAGCG)," <i>Biochem.</i> , 1993, 32, 4903-4911	
	<b>CI</b>	Kabanov, A.V., "A new class of antivirals: antisense oligonucleotides combined with a hydrophobic substituent effectively inhibit influenza virus reproduction and synthesis of virus-specific proteins in MDCK cells", <i>FEBS Letts.</i> , 1990, 259, 327-330	
	<b>CJ</b>	Katocs, A.S. et al., "Biological Testing", <i>Remington's Pharmaceutical Sciences</i> , 18th Ed., Gennaro (ed.), Mack Publishing Co., Easton, PA, 1990, Ch. 27, 484-494	
	<b>CK</b>	Kerr, L. D. et al., "TGF-β1 Inhibition of Transin/Stromelysin Gene Expression Is Mediated Through a Fos Binding Sequence," <i>Cell</i> , 1990, 61, 267-278	
	<b>CL</b>	Kerr, L. D. et al., "Growth Factors Regulate Transin Gene Expression by c-fos-Dependent and c-fos-Independent Pathways," <i>Science</i> , 1988, 242, 1424-1427	
	<b>CM</b>	Kois, P. et al., "Synthesis and Some Properties of Modified Oligonucleotides. 2. Oligonucleotides Containing 2'-Deoxy-2'-Fluoro-β-D-Arabinofuranosyl Pyrimidine Nucleosides," <i>Nucleosides Nucleotides</i> , 1993, 12(10), 1093-1109	
<b>Gk</b>	<b>CN</b>	Kroschwitz, J.I., "Polynucleotides", <i>Concise Encyclopedia of Polymer Science and Engineering</i> , 1990, John Wiley & Sons, New York, 858-859	
<b>EXAMINER</b> <i>G. Kozlowski</i>		<b>DATE CONSIDERED</b> <i>5/14/06</i>	



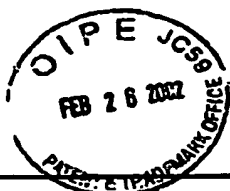
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<b>Ck</b>	<b>CO</b>	Lane, A. N. et al., "NMR Assignments and Solution Conformation of the DNA-RNA Hybrid Duplex d(GTGAACCTT)-r(AAGUUCAC)," <i>Eur. J. Biochem.</i> , 1993, 215, 297-306	
	<b>CP</b>	Lesnik, E.A. et al., "Oligodeoxynucleotides Containing 2'-O-Modified Adenosine" Synthesis and Effects on Stability of DNA:RNA Duplexes", <i>Biochem.</i> , 1993, 32, 7832-7838	
	<b>CQ</b>	Lesnik, E. A. et al., "Relative Thermodynamic Stability of DNA, RNA, and DNA: RNA Hybrid Duplexes: Relationship with Base Composition and Structure," <i>Biochemistry</i> , 1995, 34(34), 10807-10815	
	<b>CR</b>	Letsinger, R.L. et al., "Cholesteryl-conjugated oligonucleotides: Synthesis, properties and activity as inhibitors of replication of human immunodeficiency virus in cell culture", <i>Proc. Natl. Acad. Sci.</i> , 1989, 86, 6553-6556	
	<b>CS</b>	Lima et al., "Binding Affinity and Specificity of <i>Escherichia coli</i> RNase H1: Impact on the Kinetics of Catalysis of Antisense Oligonucleotide - RNA Hybrids," <i>Biochemistry</i> , 1997, 36, 390-398	
	<b>CT</b>	Lin et al., "A Cytosine Analogue Capable of Clamp-Like Binding to a Guanine in Helical Nucleic Acids," <i>J. Am. Chem. Soc.</i> , 1998, 120, 8531-8532	
	<b>CU</b>	Lisby, S. et al., "Intercellular adhesion molecule-1 (ICAM-1) expression correlated to inflammation", <i>Br. J. Dermatol.</i> , 1989, 120, 479-484	
	<b>CV</b>	Litwin, M. et al., "Novel Cytokine-independent Induction of Endothelial Adhesion Molecules Regulated by Platelet/Endothelial Cell Adhesion Molecule (CD31)," <i>J. Cell Biol.</i> , 1997, 139(1), 219-228	
	<b>CW</b>	Manoharan, M. et al., "Lipidic Nucleic Acids", <i>Tetrahedron Letts.</i> , 1995, 36, 3651-3654	
	<b>CX</b>	Manoharan M. et al., "Cholic Acid-Oligonucleotide Conjugates for Antisense Applications", <i>Bioorganic Med. Chem. Letts.</i> , 1994, 4, 1053-1060	
<b>Ck</b>	<b>CY</b>	Manoharan M. et al., "Oligonucleotide Conjugates: Alteration of the Pharmacokinetic Properties of Antisense Agents", <i>Nucleosides and Nucleotides</i> , 1995, 14, 969-973	
<b>EXAMINER</b> <i>G. Krizan</i>		<b>DATE CONSIDERED</b> <i>5/10/06</i>	



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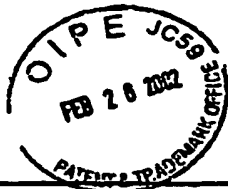
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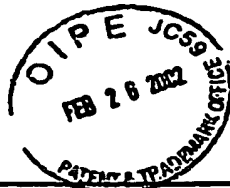
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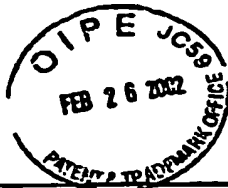
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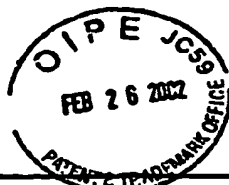
\*A copy of this reference will not be forwarded to the U.S. Patent and Trademark Office since it is believed to be too voluminous and easily obtainable by the Examiner.



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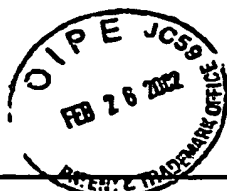
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GL	Ryan et al., "Synthesis of 2-Thio-D-ribose and 2'-Thioadenosine Derivatives", <i>J. Org. Chem.</i> , 1971, 36(18), 2646-2657		
GM	Shibahara et al., "Inhibition of human immunodeficiency virus (HIV-1) replication of synthetic oligo-RNA derivatives", <i>Nucl. Acids Res.</i> , 1989, 17(1), 239-252		
GN	Sproat, B.S. et al., "Highly Efficient Chemical Synthesis of 2'-O-methyloligoribonucleotides and Tetrabiotinylated Derivatives; Novel Probes that are Resistant to Degradation by RNA or DNA Specific Nucleases", <i>Nucl. Acids Res.</i> , 1989, 17, 3373-3386		
<b>EXAMINER</b> G. K. Kishan		<b>DATE CONSIDERED</b> 5/10/06	



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<b>List of Patent and Publications Cited by Applicant (Use several sheets if necessary)</b>  <b>U.S. Department of Commerce Patent and Trademark Office</b>		<b>Applicant</b> Manoharan et al.	
		<b>Filing Date</b> October 4, 2001	<b>Group</b> Not yet assigned
<b>OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)</b>			
GK	GO	Sproat, B. S. et al., "New synthetic routes to protected purine 2-O-methylriboside-3'-O-phosphoramidites using a novel alkylation procedure," <i>Nucl. Acids Res.</i> , 1990, 18, 41-49	
	GP	Uesugi, S. et al., "A Linear Relationship Between Electronegativity of 2'-Substituents and Conformation of Adenine Nucleosides," <i>Tetrahedron Letts.</i> , 1979, 42, 4073-4076	
	GQ	Uesugi et al., "Improved Synthesis of 2'-Fluoro-2'-Deoxyadenosine and Synthesis and Carbon-13 NMR Spectrum of Its 3',5'-Cyclic Phosphate Derivative", <i>Nucleosides &amp; Nucleotides</i> , 1983, 2, 373-385	
	GR	Uhlmann et al., "Antisense Oligonucleotides: A New Therapeutic Principle", <i>Chem. Rev.</i> , 1990, 558	
	GS	Zon, G., "Oligonucleotide analogues as potential chemotherapeutic agents," <i>Pharmaceutical Res.</i> , 1988, 5(9), 539-547	
	GT	Cheatham, T. E. et al., "Molecular Dynamics Simulations Highlight the Structural Differences among DNA:DNA, RNA:RNA, and DNA:RNA Hybrid Duplexes," <i>J. Am. Chem. Soc.</i> , 1997, 119, 4805-4825	
	GU	Jaishree, T. N. et al., "Structural Influence of RNA Incorporation in DNA: Quantitative Nuclear Magnetic Resonance Refinement of d (CG)r(CG)d(CG) and d(CG)r(C)d(TAGCG)," <i>Biochemistry</i> , 1993, 32, 4903-4911	
GRC	GV	Nishizaki, T. et al., "Solution Structures of DNA Duplexes Containing a DNA•RNA Hybrid Region, d(GG)r(AGAU)d(GAC)•d(GTCATCTCC) and d(GGAGA)r(UGAC)•d(GTCATCTCC) <sup>1-4</sup> ," <i>Biochemistry</i> , 1996, 35, 4016-4025	
<b>EXAMINER</b> G. Krishna		<b>DATE CONSIDERED</b> 5/10/06	



<b>Form PTO-1449 Modified</b>  List of Patent and Publications Cited by Applicant (Use several sheets if necessary)  U.S. Department of Commerce Patent and Trademark Office	<b>Docket No.</b> ISIS-4789	<b>Serial No.</b> 09/970,971
	<b>Applicant</b> Manoharan et al.	
	<b>Filing Date</b> October 4, 2001	<b>Group</b> Not yet assigned

**U. S. PATENT DOCUMENTS**

Examiner Initial		Document No.	Date	Name	Class	Subclass
PK	GW	3,687,808	08/29/72	Merigan et al.	195	28
	GX	4,689,320	08/25/87	Kaji	514	44
	GY	4,806,463	02/21/89	Goodchild et al.	435	5
	GZ	5,004,810	04/02/91	Draper	536	27
	HA	5,166,195	11/24/92	Ecker	514	44
	HB	5,194,428	03/16/93	Agrawal et al.	514	44
	HC	5,212,295	05/18/93	Cook	536	26.7
	HD	5,242,906	09/07/93	Pagano et al.	514	44
	HE	5,248,670	09/28/93	Draper et al.	514	44
	HF	5,442,049	08/15/95	Anderson et al.	536	24.5
	HG	5,457,189	10/10/95	Crooke et al.	536	24.5
	HH	5,514,577	05/07/96	Draper et al.	435	238
	HI	5,514,788	05/07/96	Bennett et al.	536	23.1
PK	HJ	5,523,389	06/04/96	Ecker et al.	536	23.1

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Examiner Initial		Document No.	Date	Country	Translation YES NO	
PK	HK	WO 89/12060	12/14/89	PCT		
PK	HL	WO 94/08003	04/14/94	PCT		
PK	HM	WO 92/03568	03/05/92	PCT		

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<b>List of Patent and Publications Cited by Applicant (Use several sheets if necessary)</b>  <b>U.S. Department of Commerce Patent and Trademark Office</b>				<b>Applicant</b> Manoharan et al.		
				<b>Filing Date</b> October 4, 2001	<b>Group</b> Not yet assigned	
<b>U. S. PATENT DOCUMENTS</b>						
<b>Examiner Initial</b>		<b>Document No.</b>	<b>Date</b>	<b>Name</b>	<b>Class</b>	<b>Subclass</b>
GK	HN	5,580,767	12/03/96	Cowsert et al.	435	172.3
	HO	5,582,972	12/10/96	Lima et al.	435	6
	HP	4,381,344	04/1983	Rideout et al.	435	87
	HQ	5,013,830	05/07/91	Ohtsuka et al.	536	27
	HR	5,134,066	07/28/92	Rogers et al.	435	91
	HS	5,212,295	05/18/93	Cook	536	26.7
	HT	5,214,135	05/25/93	Srivastava et al.	536	26.7
	HU	5,466,786	11/14/95	Buhr et al.	536	26.26
	HV	5,658,731	08/19/97	Sproat et al.	435	6
	HW	5,672,695	09/30/97	Eckstein et al.	536	24.5
GK	HX	5,698,687	12/16/97	Eckstein et al.	536	25.3
<b>FOREIGN PATENT DOCUMENTS</b>						
<b>Examiner Initial</b>		<b>Document No.</b>	<b>Date</b>	<b>Country</b>	<b>Translation YES NO</b>	
GK	HY	2,017,369	05/23/90	Canada	X	
GK	HZ	0 260 032	08/27/87	EP	X	
GK	IA	0 287 313	10/19/88	EP	X	
	IB	0 399 330	05/15/90	EP		X
GK	IC	0 417 999	03/10/91	EP	X	
<b>EXAMINER</b> G. Krishnan				<b>DATE CONSIDERED</b> 5/10/06		



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	Applicant <b>Manoharan et al.</b>	
	Filing Date <b>October 4, 2001</b>	Group <b>Not yet assigned</b>

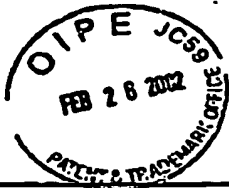
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GK	ID	5,245,022	09/14/93	Weis et al.	536	24
	IE	5,627,053	05/06/97	Usman et al.	435	91
	IF	5,639,647	06/17/97	Usman et al.	435	199
	IG	5,817,635	10/06/98	Eckstein et al.	514	44
GK	IH	5,859,221	01/12/99	Cook et al.	536	23

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GK	II	39 15462 A1	06/09/90	Germany	considered German English Abstract	X
	IJ	41 10085 A1	10/01/92	Germany	considered German English Abstract	X
	IK	WO 90/15814	12/27/90	PCT	X	
	IL	WO 91/06556	05/16/91	PCT	X	
	IM	WO 91/15499	10/17/91	PCT	considered German English Abstract	X
	IN	WO 92/07065	04/30/92	PCT	X	
	IO	339 842	11/02/89	EP		
	IP	0 552 178 B1	01/02/97	EP		
GK	IQ	1 205 021	05/27/86	Canada		

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				Applicant <b>Manoharan et al.</b>			
				Filing Date <b>October 4, 2001</b>		Group <b>Not yet assigned</b>	
<b>U. S. PATENT DOCUMENTS</b>							
Examiner Initial		Document No.	Date	Name	Class	Subclass	
GC	IR	5,582,986	12/10/96	Monia et al.	435	6	
	IS	5,591,600	01/07/97	Ecker	435	69.1	
	IT	5,591,623	01/07/97	Bennett et al.	435	240.2	
	IU	5,591,720	01/07/97	Anderson et al.	514	44	
	IV	5,607,923	03/04/97	Cook et al.	514	44	
	IW	5,620,963	04/15/97	Cook et al.	514	44	
	IX	5,639,649	06/17/97	Almond et al.	435	235.1	
	IY	5,658,891	08/19/97	Draper et al.	514	44	
	IZ	5,661,134	08/26/97	Cook et al.	514	44	
	JA	5,681,747	10/28/97	Boggs et al.	435	375	
	JB	5,681,944	10/28/97	Crooke et al.	536	24.5	
	JC	5,877,309	03/02/99	McKay et al.	536	24.5	
	JD	5,985,558	11/16/99	Dean et al.	435	6	
	JE	5,955,443	09/21/99	Bennett et al.	514	44	
	JF	6,111,094	08/29/00	Bennett et al.	536	24.5	
	JG	5,334,711	08/02/94	Sproat, et al.	536	24.5	
	JH	6,300,491	10/09/01	Bennett et al.	536	24.5	
	JI	5,670,633	09/23/97	Cook et al.	536	23.1	
GR	JJ	6,307,040	10/23/01	Cook et al.	536	24.5	
EXAMINER <i>G. Karim</i>				DATE CONSIDERED <i>5/10/06</i>			